REMARKS

Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the foregoing amendments and the following remarks.

Claims 1-37, 44, 46-63 and 74-89 are pending in the subject application.

Claims 38-43, 45 and 64-73 were previously canceled. These claims were withdrawn from consideration as the result of an Examiner's earlier restriction requirement. In view of the Examiner's restriction requirement, Applicants reserve the right to present the above-identified withdrawn claims in a divisional application.

Claims 1, 37, 46-63 and 74-89 stand rejected under 35 U.S.C. §102 and/or 35 U.S.C. §103.

Claim 1 was amended to include the limitations of claim 6 and claim 6 was canceled, which claims were amended and canceled without prejudice or disclaimer.

Claim 7 was amended so as to reflect the cancellation of claim 6.

Claim 52 was amended to include the limitations of claim 63 and claim 63 was canceled, which claims were amended and canceled without prejudice or disclaimer.

Claim 74 was amended to include limitations of claims 6 and 84.

Claims 75 was amended to include the limitations of claim 6.

Claims 88 and 89 were amended to avoid a possible antecedent basis concern.

Claim 90 was added to more distinctly claim embodiments of the present invention and the added claims was based on claim 88.

The amendments to the claims are supported by the originally filed disclosure.

35 U.S.C. §102 REJECTIONS

The Examiner rejected claims 1-2, 6, 9-10, 52 and 75-76 under 35 U.S.C. §102(e) as being anticipated by Alexander et al. [U.S. Patent Application Pub No. US2004/0076940; "Alexander"]. Applicants respectfully traverse. Because claims were amended in the instant amendment, the following discussion refers to the language of the amended claims. However, only those amended features specifically relied upon to distinguish the claimed invention from the cited prior art shall be considered as being made to overcome the cited reference. The following addresses groups of claims as provided below. As the limitations of claim 6 were added to claim 1, claim 6 is not separately addressed hereinafter.

It is generally accepted that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Or stated another way, "The identical invention must be shown in as complete detail as is contained in the ... claims. *Richardson v Suziki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d. 1913, 1920 (Fed. Cir. 1989). Although identify of terminology is not required, the elements must be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). As the CAFC also has provided, in deciding the issue of anticipation, the trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify *corresponding elements* disclosed in the allegedly anticipating reference (emphasis added, citations in support omitted). *Lindemann Maschinenfabrik GMBM v. American Hoist and Derrick Company et al.*, 730 F. 2d 1452, 221 USPQ 481,485 (Fed. Cir. 1984).

Claims 1-2, 9-10

In claim 1, Applicants claim a simulator system including a manikin and a medical device that simulates the use and movement of the medical device in a simulated body cavity or lumen of the manikin. The manikin includes the simulated body cavity or lumen and an interface

device. The medical device has a first end for manipulation by a first user and a portion having a second end that is insertable into the simulated body cavity or body lumen.

The interface device is configured to receive the medical device portion having the second end and to also interface with the simulated body cavity or lumen and includes an active directional force feedback mechanism. The active directional force feedback mechanism is configured so as to exert a directional force directly on the medical device portion in response to a feedback signal received by the force feedback mechanism.

Such a simulator system also includes a computational engine embodying physically based modeling using finite element methodology, the computational engine simulating interactions between the medical device and body cavity or lumen, the interactions relating to the manipulation of the medical device by the first user. Also, the computational engine models interactions between the medical device and the body cavity or lumen in three-dimensions, computes forces that would arise from interactions between the medical device and body cavity or lumen and outputs feedback signals corresponding to the computer forces to the active directional force feedback mechanism. In this way, the computed forces are feedback to the user so that they receive a force feedback corresponding to that which would arise from an interaction between the medical device and body cavity or lumen.

In the above-referenced Office Action it is asserted, *inter alia*, that Alexander describes that "the manikin includes an interface device configured to receive the medical device portion having a second end and to interface with the simulated body cavity or lumen (124)" it is also asserted that the interface device includes an active directional force feedback mechanism that exerts a directional force on the medical device in response to a feedback signal received by the force feedback mechanism." The above-referenced Office Action also provides (in connection with claim 6) that paragraph [0046] in a tactile feedback mechanism as set forth in claim 6. Applicants respectfully disagree that Alexander describes the interface device and tactile mechanisms as presently claimed.

As can be seen form the following excepts from Alexander (and also with reference to Figs. 3-6 thereof), the interface device in Alexander is arranged so that it includes the housing of a mock body region and other structure that engages with the endoscope tube (medical device) when it is inserted into through an orifice in the mock body region. This other structure includes an inner tube having a capture device that captures the medical device after it is through orifice and into the inner tube. This is done so translation and rotational movement can be measured.

The inner tube that captures the medical device is attached to a trolley assembly which is coupled to a belt that extends between two pulleys. An actuator is disposed proximate one of the pulleys to either impede or enhance rotation of the second pulley and in turn enhance or impede belt or trolley motion, thereby providing force feedback to the endoscope tube.

> [0022] According to the present invention, an interface device and method for interfacing instruments to a medical procedure simulation system, typically including a computer system and display, serve to interface peripherals in the form of mock medical instruments to the medical procedure simulation system computer to enable simulation of medical procedures. The interface device includes a housing having a mock bodily region of interest to facilitate insertion of a mock instrument, such as an endoscope tube, into the interface device via an orifice. The mock bodily region of interest may be pivotable to simulate various patient orientations. *The endoscope tube traverses the orifice and a guide tube, and is subsequently engaged by a capture mechanism* in order to measure rotational and translational motion of the endoscope tube. *The capture mechanism is disposed at the proximal end of an inner tube, disposed in slidable relation within an outer tube*, whereby the outer tube receives the endoscope tube from the guide tube. *The inner tube distal end is attached to a trolley assembly* having a rotational encoder to measure rotation of the inner tube, and hence, the endoscope tube, whereby *the trolley assembly is coupled to a belt extending between and about first and second pulleys*. A translational encoder is disposed proximate the first pulley to measure pulley rotation based on belt or trolley assembly motion, thereby providing an indication of endoscope tube translational motion. *An actuator is disposed proximate the second pulley to impede or enhance pulley rotation and belt or trolley assembly motion, thereby providing force feedback to the endoscope tube.* The measured motion is provided to the computer system to reflect instrument motion on the display during the simulation.
> (Italics added for emphasis)

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[0046] Interface device 20 includes at least one orifice, such as a simulated nostril, throat, anus, or puncture (as by trocar) etc., for receiving actual or mock endoscope 22. Endoscope 22 typically includes a handle 21, working channel 15, working channel tool 23, thumb lever 19 and switches 18. *The endoscope is typically inserted into an interface device orifice and manipulated to perform a simulated endoscopic procedure. Interface device 20 measures manipulation of endoscope 22 and working channel tool 23, and provides signals indicating the measured manipulation to computer system 25.* Computer system 25 processes the signals to display, via monitor 28, the internal bodily region of interest (e.g., a tracheobronchial tree as shown in FIG. 2), while adjusting the display to reflect manipulation of endoscope 22 (e.g., including manipulation of switches 18 and thumb lever 19) and working channel tool 23. *Computer system 25 further provides force feedback to the endoscope based on manipulation of the endoscope.* Communications interface 24 transfers the manipulation and force feedback signals between computer system 25, interface device 20 and endoscope 22. (Italics added for emphasis)

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[0048] *An exemplary interface device 20 for the endoscopic procedure simulation system is illustrated in FIG. 3. Specifically, interface device 20 typically includes a mock bodily region of interest having an orifice for receiving an endoscope.* By way of example only, the interface device includes a mock head 62 having a nostril 36 for receiving an endoscope 22, typically a bronchoscope. *Endoscope 22 includes a navigation tube 49 that is inserted within nostril 36.* A guide tube 34 is disposed adjacent nostril 36. The guide tube includes cross-sectional dimensions greater than the cross-sectional dimensions of navigation tube 49 such that the navigation tube extends through guide tube 34 to interface an instrument capture mechanism 38. *Guide tube 34 extends from nostril 36 and curves approximately ninety degrees to interface an outer tube 58.* Outer tube 58 includes cross-sectional dimensions greater than the cross-sectional dimensions of guide tube 34 such that a step or shoulder 104 is formed at the interface between the outer and guide tubes. *An inner tube 56 includes cross-sectional dimensions less than the cross-sectional dimensions of outer tube 58, whereby the inner tube is disposed in slidable relation within the outer tube.* (Italics added for emphasis)

[0049] *Capture mechanism 38 is disposed toward the proximal end of inner tube 56 and engages navigation tube 49 such that inner tube 56 is*

translated and rotated based on manipulation of endoscope 22 as illustrated in FIG. 4. Specifically, capture mechanism 38 is disposed toward the proximal end of inner tube 56 and includes disc 72, woven mesh tubular member 74 and substantially annular washers 68, 76, 78. Disc 72 is disposed at the capture mechanism distal end and is attached to washer 68 via fasteners 64, whereby the washer is disposed proximally of the disc. The distal end of woven mesh tubular member 74 is inserted through washer 68 and attached to disc 72. The woven mesh tubular member is typically constructed of spirally wound material and includes expandable and compressed states, whereby the woven mesh tubular member cross-sectional dimensions increase when the member is compressed and decrease when the member is expanded. The proximal end of woven mesh tubular member 74 is inserted through washer 78 and attached to washer 76. Washer 76 is disposed proximally of washer 78 and is connected to washer 78 via fasteners 64. A helical spring 70 is disposed between washers 68, 78 and about woven mesh tubular member 74. The cross-sectional dimensions of the spring are greater than the cross-sectional dimensions of the woven mesh tubular member and openings within washers 68, 78 to permit the spring to enter expanded and compressed states. The spring enables the woven mesh tubular member to enter the compressed and or expanded state in order to vary the tubular member cross-sectional dimensions for engaging and releasing navigation tube 49. In particular, expansion of spring 70 causes woven mesh tubular member 74 to expand, thereby extending the woven mesh tubular member and decreasing the cross-sectional dimensions of that member due to the spiral-shaped nature of the woven mesh material. Conversely, compression of spring 70 decreases the length of woven mesh tubular member 74, thereby increasing the cross-sectional dimensions of the woven mesh tubular member. (Italics added for emphasis)

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[0052] Referring back to FIG. 3, *the distal end of inner tube 56 is connected to a trolley assembly 46 that enables measurement of translational and rotational motion of navigation tube 49 via sensed motion of inner tube 56. Trolley assembly 46 is attached to a belt 44 that extends between and about a pair of pulleys 42, 43 disposed on corresponding supports 39, 41.* Supports 39, 41 are separated by a distance similar to the length of inner tube 56, and include guide rails 40 extending between the supports with belt 44 disposed between the guide rails. Trolley assembly 46 includes openings defined in the trolley assembly portion adjacent belt 44 for receiving guide rails 40 to direct trolley assembly motion. A rotation encoder 30 is disposed on the trolley assembly and includes a shaft that interfaces the distal end of inner tube 56 to

measure rotational motion of navigation tube 49, while a translation encoder 31 is disposed on support 41 to interface pulley 43 and measure translational motion of the navigation tube. *In particular, once navigation tube 49 interfaces capture mechanism 38, additional translational force applied to the endoscope (e.g., motion of the navigation tube into simulated lungs) enables inner tube 56 to slide relative to outer tube 58, thereby causing trolley assembly 46 to move along guide rails 40. The trolley assembly motion manipulates belt 44 about pulleys 42, 43, thereby causing the pulleys to rotate.* Rotation of pulley 43 is measured by translation encoder 31 to provide an indication of translational motion of the navigation tube into or out of the lungs, stomach, colon, etc. Further, rotational motion of navigation tube 49 causes inner tube 56 to rotate, thereby enabling rotation encoder 30 to measure the navigation tube rotation. The capture mechanism secures navigation tube 49 to inner tube 56 such that rotation of the navigation tube causes rotation of inner tube 56. Rotation and translation encoders 30, 31 essentially generate signals that are sent to communications interface 24 (FIG. 1). The communications interface includes a processor or other circuitry to determine respective encoder pulse counts and provide signals to computer system 25 indicating rotational and translational motion of the navigation tube. Computer system 25 processes the pulse counts to enable simulation of navigation tube rotation and translation. (Italics added for emphasis)

[0053] During an actual procedure, a medical practitioner is able to view the inside lumen or other interior region of the bodily cavity. For example, a bronchoscope may be inserted into a nasal opening and extend into the lungs. A medical practitioner typically manipulates the bronchoscope in its degrees of freedom (e.g., translational, rotation and flexion of the bronchoscope distal tip) to safely navigate down a lumen or opening in branches of a bronchial tree. However, *during navigation, the bronchoscope typically encounters bifurcations (e.g., the bronchial tree bifurcates into various lobes, segments and sub-segments) and may contact walls of the bronchi, whereby the medical practitioner feels forces on the bronchoscope.* This generally occurs when the medical practitioner fails to steer down the center of one of the paths of the lung bifurcations, thereby contacting the bronchial wall at the bifurcation. *In order to simulate those or other forces encountered during an actual procedure, a force feedback unit 60 is employed within the interface device. Specifically, force feedback unit 60 is disposed on support 39 adjacent pulley 42 to impart forces encountered during an actual procedure, such as touching lung walls or bronchial walls at a bifurcation during a bronchoscope examination. Force feedback unit 60 is typically implemented by an*

> *electromagnetic device and receives control signals from computer system 25 via communications interface 24. Computer system 25 determines, based on manipulation of the endoscope, the feedback force to apply, and sends control signals to communications interface 24.* The communications interface includes digital to analog converters (DAC) and converts the computer system control signals to analog signals in order to transmit the signals to the interface device to control force feedback unit 60. *The force feedback unit imparts a magnetic force on pulley 42 to impede or enhance pulley rotation and trolley assembly motion. The impeded motion requires additional force to be applied to the endoscope to overcome the magnetic force, while enhanced motion requires application of less force, thereby providing a realistic feel to the endoscopic procedure.* (Italics added for emphasis)

In sum, and as can be seen from the foregoing excerpts, the interface device in Alexander embodies features associated with a manikin and structure for engaging with the endoscope. As set forth in claim 1, the interface device (i) is configured to receive the medical device portion having the second end and to also interface with the simulated body cavity or lumen and (ii) includes an active directional force feedback mechanism. It is further provided in claim 1 that the directional force feedback mechanism *is configured* so as to exert a directional force on the medical device in response to a feedback signal received by the force feedback mechanism. As can be seen from the foregoing excerpts, the feedback mechanism retards or facilitates rotational motion of the pulley and thus motion of the belt coupled to the trolley. Thus, the feedback mechanism in Alexander does not exert a directional force on the medical device portion in response to a feedback signal received by the force feedback mechanism.

As to the assertion in Alexander referred to in connection with the rejection of claim 6, it is indicated that the discussion in paragraph 46 describes a tactile feedback mechanism as set forth in claim 6. As these features were added in the foregoing amendment, Applicants provide the following additional comments to further distinguish claim 1.

As set forth in claim 1, the tactile feedback mechanism is selectively coupled to the medical device so as to simulate forces being exerted on the medical device and also that *these simulated forces are different* from the directional forces associated with interactions between the

medical device and the body cavity or lumen. It is clear form the foregoing excerpts that when paragraph [0046] is read in connection with other pertinent discussion, the forces referred to in this paragraph are those which relate to forces associated with an interaction between the medical device and the structure of the body cavity and lumen (*i.e.*, "during navigation, the bronchoscope typically encounters bifurcations (e.g., the bronchial tree bifurcates into various lobes, segments and sub-segments) and may contact walls of the bronchi, whereby the medical practitioner feels forces on the bronchoscope. This generally occurs when the medical practitioner fails to steer down the center of one of the paths of the lung bifurcations, thereby contacting the bronchial wall at the bifurcation. In order to simulate those or other forces encountered during an actual procedure, a force feedback unit 60 is employed within the interface device."). Thus, this paragraph cannot describe the tactile feedback mechanism of claim 1.

As to claims 2 and 9-10, each of these claims depends (directly or ultimately) from claim 1, which claim is considered to be in allowable form. Thus, each of claims 2 and 9-10 and 47-48 is considered to be allowable at least because of the dependency from an allowable base claim. This shall not be considered to be an admission that claims 2 and 9-10 would not be separately patentable from Alexander.

It is respectfully submitted that claims 1-2, and 9-10 are patentable over the cited reference for the foregoing reasons.

Claim 52

Applicants respectfully submit that the foregoing remarks distinguishing claim 1 from Alexander also at least apply to distinguish the method for simulating the use and movement of a medical device as set forth in claim 52 from Alexander.

It is respectfully submitted that claim 52 is patentable over the cited reference for the foregoing reasons.

Claims 75-76

Applicants respectfully submit that the foregoing remarks distinguishing claim 1 from Alexander also at least apply to distinguish the simulator system as set forth in claim 75 from Alexander .

As to claim 76, this claim depends from claim 75, which claim is considered to be in allowable form. Thus, claim 76 is considered to be allowable at least because of the dependency from an allowable base claim. This shall not be considered to be an admission that claim 76 would not be separately patentable from Alexander.

It is respectfully submitted that claims 75 and 76 are patentable over the cited reference for the foregoing reasons.

It is respectfully submitted that for the foregoing reasons, claims 1-2, 9-10, 52 and 75-76 are patentable over the cited reference and thus, satisfy the requirements of 35 U.S.C. 102(e). As such, these claims, including the claims dependent therefrom are allowable.

35 U.S.C. §103 REJECTIONS

Claims 3-5, 11, 16-23, 25, 28, 30, 33-35, 37, 47-48, 53-55, 57-58 and 61-62 stand rejected under 35 U.S.C. §103 as being unpatentable over Alexander et al. [U.S. Patent Application Pub No. US2004/0076940; "Alexander"] in view of Chosack et al. [WO 99/38141; "Chosack"]; claims 12-15 stand rejected as be unpatentable over Alexander in view of Chosack and further in view of Belson et al. [USP 6,610,017; "Belson"]; claims 49 and 77-87 stand rejected over Alexander in view of Chosack and further in view of Cai et al., Parametric Modeling Based on Multi-Layered Approach for Design and Validation of Catheterization Devices [citations omitted; "Cai"]; claims 7, 8, 63, 74, 88 and 89 stand rejected as being unpatentable over Alexander in view of Chosack and further in view of Rosenberg et al. [U.S.

Patent 5,959,613; "Rosenberg"]; claims 24 and 32 stand rejected as being unpatentable over Alexander in view of Chosack and further in view of Simon et al. [U.S. Patent 6,470,207; "Simon"] and Saunders [U.S. Patent 6,572,376]; claims 26, 27, 29, 31 and 56 stand rejected as being unpatentable over Alexander in view of Chosack and further in view of Pollak, et al. [U.S. Patent 66,106,297; "Pollak"] and Issenberg, et al. Simulation Technology for Health Care Professional Skills Training and Assessment [citations omitted; "Issenberg"]; claim 36 stands rejected as being unpatentable over Alexander in view of Chosack and further in view of Pollak, and Issenberg and further in view of Hon [U.S. Patent 6,074,213]; and claims 44, 46, 50, 51, 59 and 60 stand rejected as being unpatentable over Alexander in view of Chosack and further in view of Merrill [U.S. Patent 6,106,301] for the reasons provided on pages 6-23 of the above-referenced Office Action. As claim 63 was cancelled in the foregoing amendment, this claim has not been further addressed herein.

It is respectfully submitted that each of the foregoing claims is considered to be patentable over the identified combination of references as the primary reference (*i.e.*, Alexander) does not disclose the claimed invention and the secondary, tertiary, etc. references do not make up for the deficiencies in the primary reference identified in the discussion above concerning the §102(e) rejection.

As such, at least for this reason each of claims 3-5, 7-8, 11-12-15-16, 23-37, 44, 46-51, 53-62, 74, and 77-89 claims is considered to be patentable over the identified combination of references. These brief remarks, however, shall not be construed as an admission that these claims are not otherwise patentable over the cited art.

For example, as to claims 3-5 it is provided that Alexander does not describe that the active directional force feedback mechanism includes a rolling element that is coupled to the medical device portion having the second end and wherein an internal surface of the simulated cavity or lumen in the manikin includes an oblique slot and wherein the active directional force feedback mechanism is arranged so that the rolling element is receivable in the oblique slot of claim 3, that in response to a feedback signal, forward movement of the medical device second

end causes the rolling element to be received by the slot, thereby causing resistance to further forward motion as set forth in claim 4, or that the active directional force feedback mechanism includes a motor, where the motor controls movement of the rolling element as set forth in claim 5. It is further asserted that the omitted teachings are provided on pages 24-26 of Chosack and also with reference to Figs. 7(a)-(d) thereof. Applicants respectfully disagree with the assertions as to the combination and also what is being described in Chosack.

It first should be noted that the discussion referred to in Chosack describes the mechanisms being provided in Chosack for providing tactile feedback. As to the rolling elements or bearings, Chosack provides that the guiding sleeve 150 has at least one and preferably a plurality of ball bearings attached to the exterior surface of the guiding sleeve (pg. 24, lines 28-30). It is further described that as the endoscope 146 moves within the simulated gastro-intestinal tract 160, the ball bearings 154 roll along the interior surface of the gastro-intestinal tract (pg. 25, lines 13-15).

Chosack also provides that the guiding sleeve also has at least one and preferably a plurality of attached plungers 156 (pg. 24, lines 29-30). It is further described that each of the plungers 156 is connected to a linear motor 162 (see Fig. 7(d) and that upon receipt of control signals from the computer, the linear motor 162 causes plunger 156 to move vertically thereby causing the operator of the simulated endoscope to receive tactile sensations.

In sum, the discussion in Chosack in no way corresponds to a description of a feedback mechanism that would be used to provide an active directional force feedback mechanism as set forth in claim 1. Particularly as the active directional force feedback mechanism is feedback forces to the user that result from the computational engine modeling interactions between the medical device and the body cavity or lumen in three-dimensions, computing forces that would arise from interactions between the medical device and body cavity or lumen and outputting feedback signals corresponding to the computer forces to the active directional force feedback mechanism. Furthermore, such a discussion also does not provide any indication that replacing a feedback mechanism such as that described in Alexander (see excerpts provided above) with a

plurality of ball bearings and a separate plunger mechanism as described in Chosack would be reasonably successful. Even if one were to use the teachings of Chosack. the modification would not yield the invention claimed by Applicants.

Moreover, the suggested modification would destroy the intended purpose and function of the structure described in Alexander. In Alexander the trolley, belt and pulley structure is utilized for purposes of measuring rotational and longitudinal motion of the endoscope as it is being manipulated by the user as the endoscope is captured in a tube that is connected to the trolley. In sum, the suggested modification amount to a suggestion to destroy substantial portions of the interface device described in Alexander in a failed attempt to yield the active directional force feedback mechanism as set forth in any of claims 3-5.

In regards to the rejection of claims 49 and 77-87 reference is made to the teachings of Cai. Applicants would note that is a paper on the simulation based catheter design. The program or methodology described therein is utilized in connection with the design and validation of the designed catheterization device. In other words, the computer implemented methodology describes a technique whereby after a catheter is designed, the virtual catheter design is then validated. That the validation process can involve passing the virtual catheter through a virtual blood vessel does not describe a training simulator methodology or a methodology intended for use with a training.

As provided in MPEP 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, the references cited, alone or in combination, include no such teaching, suggestion or motivation.

Furthermore, and as provided in MPEP 2143.02, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re*

Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 19866). Additionally, it also has been held that if the proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited references, there is no reasonable expectation of success provided in the reference(s). Also, it is clear from the foregoing discussion that the modification suggested by the Examiner would change the principle of operation of the device disclosed in the principal reference.

Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *In re Mills* , 916 F. 2d, 680, 682; 16 USPQ 2d 1430, 1432 (Fed. Cir. 1990). As the Federal circuit also has stated, "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." *In re Fritch*, 972 F.2d 1260,1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

As provided by the Federal circuit, a 35 U.S.C. §103 rejection based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in a reference, is not proper and the prima facie case of obviousness cannot be properly made. In short there would be no technological motivation for engaging in the modification or change. To the contrary, there would be a disincentive. *In re Gordon*, 733 F. 2d 900, 221 USPQ 1125 (Fed. Cir. 1984). In the present case it is clear that if the device, systems and methods described in Alexander were modified in the manner suggested by the Examiner it would destroy the intent, purpose or function of such devices, systems and methods as taught by Alexander.

It is respectfully submitted that for the foregoing reasons, claims 7, 8, 12-15, 24, 26, 27, 29, 32, 36, 44, 46, 49-51, 56, 59, 60 63, 74, and 77-89 are patentable over the cited reference(s) and thus, satisfy the requirements of 35 U.S.C. §103. As such, these claims are allowable.

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

Applicants believe that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,
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By: _____

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